

REMARKS

The Examiner is thanked for the performance of a thorough search and for considering the references in the Information Disclosure Statement mailed on January 26, 2004.

I. STATUS OF CLAIMS

By this amendment, Claims 7-9, 13-14, 25-27, and 31-32 have been amended. In particular, the features of Claim 6 have been incorporated in Claims 7 and 8, and the features of Claim 24 have been incorporated in Claims 25 and 26. Claims 9, 13-14, 27, and 31-32 have been amended to provide for proper antecedent basis and not for purposes of overcoming alleged prior art.

Claims 37-40 have been added.

Claims 6, 10-12, 24, and 28-30 have been cancelled.

Hence, Claims 1-5, 7-9, 13-23, 25-27, and 31-40 are pending in the application.

As a preliminary matter, it is noted that the rejections in the present first Office Action are based on the version of the claims prior to the entry of the Preliminary Amendment mailed by the Applicants on February 8, 2005 with a Certificate of Mailing in accordance with 37 C.F.R. § 1.8. Since the Preliminary Amendment with the Certificate of Mailing is in full compliance with provisions of 37 C.F.R. § 1.8(a)(1), the Preliminary Amendment must be afforded a date of receipt at the United States Patent and Trademark Office (U.S. PTO) of February 8, 2005, which is one day earlier than the mailing date of the present first Office Action on February 9, 2005.

Therefore, the arguments made herein are based on the claims as amended by both the Preliminary Amendment and this communication.

II. SUMMARY OF THE REJECTIONS

Claims 1, 4-5, 7-9, 13-14, 17-18, 19, 22-23, 25-27, 31-32, and 35-36 have been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over Iba et al., U.S. Patent No. 5,835,766 (“IBA”) in view of Davies et al., U.S. Patent No. 5,682,537 (“DAVIES”).

Claims 2-3, 15-16, 20-21, and 33-34 have been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES, and further in view of Porter et al., U.S. Patent No. 6,332,023 (“PORTER”).

III. REJECTIONS BASED ON THE CITED ART

A. Independent Claim 7

Claim 7 has been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES. The rejection is respectfully traversed.

Claim 7 includes the feature of

wherein the step of filtering further includes removing from said plurality of candidates any candidates that have a CAN-BE-VICTIM flag that indicates the candidate cannot be a victim.

Thus, in Claim 7 one of the factors taken into account in selecting a candidate as a victim for resolving a deadlock is a CAN-BE-VICTIM flag that indicates whether or not the candidate can be selected as a deadlock victim. It is respectfully submitted that this feature of Claim 7 is not shown or in any way suggested by IBA or DAVIES, when taken alone or in combination.

In particular, nothing in IBA or DAVIES shows or suggests that a candidate for a victim in a deadlock is associated with a flag that indicates whether or not the candidate can be selected as a victim in order to resolve the deadlock. For this reason, IBA and DAVIES cannot possibly show or in any way suggest the feature of Claim 7 of removing from the plurality of

victim candidates a candidate that has a CAN-BE-VICTIM flag which indicates the candidate cannot be a victim.

The Office Action states that DAVIES teaches the use of a CAN-BE-VICTIM flag in col. 12, lines 31-51. This is incorrect. In col. 12, lines 31-51 DAVIES states:

The Queued-Requests List 126 is searched at Step 204. **Only those Lock Requests 128a-c that have been queued for a predetermined period of time are reported to the Deadlock Detector 92**, rather than reporting all Lock Requests on the Queued-Requests List. Because the Queued Requests List is ordered according to the Time Stamps of the Lock Requests 128a-c, processing of the Queued Requests List begins at the head of the list and proceeds until a Lock Request is encountered whose Time Stamp indicates that its time in the list is less than the Request Time-out period. Referencing FIG. 6, Lock Request 128a is the first Lock Request that is checked. If its Time Stamp indicates that it has been queued longer than the Request Time-out Period, an entry is placed in the Queued Requests Packet, as indicated by Step 206, that will be sent to the Deadlock Detector.

Once all the timed-out Lock Requests are identified and entries placed in a Queued-Requests Packet, the Packet is sent from a Deadlock Preprocessor element 74a-d to the Deadlock Detector 92 using common message passing techniques. (Emphasis added.)

The Applicants cannot determine what in the above passage corresponds to anything resembling the CAN-BE-VICTIM flag of Claim 7. In fact, the Queued-Requests List described in the above passage from DAVIES is not even a list of candidates for a deadlock victim, but “is used for managing requests for locking records for which there is presently a conflicting lock held by another [sic] transaction.” (DAVIES, col. 10, lines 35-37). The fact there may be a lock conflict between an issued lock and a lock request does NOT in and by itself indicate that there is a deadlock. Further, as the highlighted portion of the above passage suggests, the lock requests on the Queued-Requests List are reported to the Deadlock Detector. “[T]he Deadlock Detector waits for a predetermined period of time, which is specified by the Lock Reporting Period, to perform a periodic check for deadlock.” (DAVIES, col. 13, lines 59-61.) It therefore follows that the lock requests on the Queued-Requests List necessarily are entered

in the list BEFORE a deadlock is detected by the Deadlock Detector. For this reason, the Queued-Requests List cannot possibly be a list of plurality of candidates involved in a deadlock as featured in Claim 7, and thus the above passage cannot possibly describe or in anyway suggest a CAN-BE-VICTIM flag associated with a candidate that indicates the candidate cannot be a victim.

Further, the Applicants cannot determine that any other passage in DAVIES describes filtering of victim candidates for resolving a deadlock based on a CAN-BE-VICTIM flag as featured in Claim 7. Moreover, the Office Action does not suggest, and the Applicants cannot determine, that anything in IBA teaches or in any way suggests a feature that corresponds to using a CAN-BE-VICTIM flag for filtering deadlock victim candidates.

It should also be noted that the victim candidates for resolving a deadlock, as featured in Claims 7 and in the other claims, are resources involved in the deadlock. Nothing in the art of record discloses or suggests determining the victim for resolving the deadlock based on flag associated with the resources themselves.

For the reasons given above, IBA and DAVIES, when taken alone or in combination, do not teach all of the features recited in Claim 7. Thus, the Applicants respectfully submit that Claim 7 is patentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES.

B. Independent Claim 8

Claim 8 has been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES. The rejection is respectfully traversed.

Claim 8 recites the feature of

wherein the step of filtering further includes removing from said plurality of candidates the candidates whose **resource priority** is higher than the resource priority of at least one of the other candidates.

Thus, in Claim 8 one of the factors taken into account in selecting a candidate as a victim for resolving a deadlock is the resource priority of a candidate. It is respectfully submitted that this feature of Claim 8 is not shown or in any way suggested by IBA or DAVIES, when taken alone or in combination.

In particular, nothing in IBA or DAVIES shows or suggests that resources have priorities, much less that the priority of a resource involved in a deadlock is in any way relevant in selecting a deadlock victim from a plurality of candidates to be said victim. The priorities discussed in IBA are priorities of transactions, not the priorities of the resources accessed by those transactions. For this reason, IBA and DAVIES cannot possibly show or in any way suggest the feature of Claim 8 of filtering by removing from the plurality of victim candidates a candidate whose resource priority is higher than the resource priority of at least one other candidate.

The Office Action asserts that IBA teaches the use of a resource priority as a factor in selecting a deadlock victim in col. 12, lines 62-64. This is incorrect. In col. 12, lines 46-48 IBA states that “[w]hen a deadlock is generated between global transactions, **first by applying the first standard, a global transaction having lower priority is selected to be canceled.**” (Emphasis added.) Further, in col. 12, lines 62-67, IBA states that “[i]f a deadlock is generated between these four transactions T1-T4, **first using the first standard** (a large numerical value is specified to be higher in priority), either of T1 or T4 is to be canceled...” (Emphasis added.) Thus, IBA describes that the priority **of a transaction** and NOT the priority **of a resource** is used as a factor in selecting the deadlock victim. However, using the priority of a transaction to select a deadlock victim is very different than using a priority associated with a resource involved in a deadlock for selecting the deadlock victim.

For example, suppose that a certain resource involved in a deadlock has a very low priority. Further suppose that the resource is held by a transaction with a very high priority. If the priority of the transaction is used to determine the victim for resolving the deadlock, then the transaction is not going to be selected as the deadlock victim. However, if the priority of the resource is used to select the deadlock victim, then the transaction WILL be selected as the deadlock victim even though the transaction has a very high priority, because the resource held by the transaction is of low priority and thus deemed not important or significant.

In contrast to IBA, Claim 8 features the use of a resource priority as a factor in removing from the plurality of victim candidates a candidate whose resource priority is higher than the resource priority of at least one other candidate. For this reason, IBA does not teach or in anyway suggest the use of a resource priority as a factor in selecting a deadlock victim from among a plurality of candidates involved in a deadlock. Further, the Office Action does not assert, and the Applicants cannot determine that DAVIES describes this feature of Claim 8.

For the reasons given above, IBA and DAVIES, when taken alone or in combination, do not teach all of the features recited in Claim 8. Thus, the Applicants respectfully submit that Claim 8 is patentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES.

C. Independent Claim 1

Claim 1 has been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES. The rejection is respectfully traversed.

Claim 1 includes features similar to the features of Claims 7 and 8 discussed above. In particular, Claim 1 features performing a first filtering pass that removes candidates from the set of candidates to be a victim based on CAN-BE-VICTIM flags associated with the candidates, and performing a second filtering pass that removes candidates from the set of

candidates to be a victim based on priorities associated with the candidates, where the candidates for a victim are resources.

Thus, the Applicants respectfully submit that Claim 1 is patentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES for at least the reasons given above with respect to Claims 7 and 8.

D. Independent Claims 19, 25, and 26

Claims 19, 25, and 26 have been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES. The rejection is respectfully traversed.

Independent Claims 19, 25, and 26 include features similar to the features of Claims 1, 7, and 8 discussed above. For this reason, the Applicants respectfully submit that Claims 19, 25, and 26 are patentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES for at least the reasons given above with respect to Claims 1, 7, and 8.

E. Dependent Claims 2-5, 9, 13-18, 20-23, 27, and 31-36

Claims 4-5, 9, 13-14, 17-18, 22-23, 27, 31-32, and 35-36 have been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES. Claims 2-3, 15-16, 20-21, and 33-34 have been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over IBA in view of DAVIES, and further in view of PORTER.

Each of Claims 2-5, 9, 13-18, 20-23, 27, and 31-36 is dependent upon one of independent Claims 1, 7, 8, 19, 25, or 26, and thus includes each and every feature of its corresponding independent claim. Furthermore, in rejecting Claims 2-3, 15-16, 20-21, and 33-34 the Office Action relies explicitly on IBA or DAVIES, and not on PORTER, to show the features discussed above with respect to Claims 1, 7, 8, 19, 25, and 26. Because IBA and DAVIES do not teach the subject matter of Claims 1, 7, 8, 19, 25, and 26, any combination of IBA and DAVIES with PORTER necessarily fails to teach the complete combination recited in

any dependent claim of Claims 1, 7, 8, 19, 25, and 26. Thus, each of claims 2-5, 9, 13-18, 20-23, 27, and 31-36 is allowable for the reasons given above for Claims 1, 7, 8, 19, 25, and 26.

In addition, each of Claims 2-5, 9, 13-18, 20-23, 27, and 31-36 introduces one or more additional features that independently render it patentable. However, due to the fundamental differences already identified, to expedite the positive resolution of this case a separate discussion of those features is not included at this time. Therefore, it is respectfully submitted that Claims 2-5, 9, 13-18, 20-23, 27, and 31-36 are allowable for at least the reasons given above with respect to Claims 1, 7, 8, 19, 25, and 26.

F. New Claims 37-40

New Claim 37 includes the same features as the original Claim 9 but depends on Claim 8. New Claim 38 includes the same features as the original Claim 13 but depends on Claim 8. New Claims 39 and 40 are the computer-readable medium versions of Claims 37 and 38, respectively.

For these reason, the addition of new Claims 37-40 does not introduce new matter in the present application. Further, new Claims 37-40 are patentable for at least the same reasons provided above with respect to Claims 9 and 13, and thus allowance of new Claims 37-40 is respectfully requested.

IV. CONCLUSION

The Applicants believe that all issues raised in the Office Action have been addressed. Further, for the reasons set forth above, the Applicants respectfully submit that allowance of the pending claims is appropriate. Reconsideration of the present application is respectfully requested in light of the amendments and remarks herein.

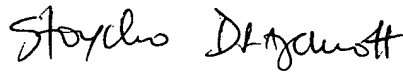
The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

A petition for extension of time, to the extent necessary to make this reply timely filed, is hereby made. If applicable, a law firms check for the petition for extension of time fee is enclosed herewith. If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to charge any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,

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